

Exercise #1 :

1. Match the following terms and definitions:

weak entity (c)	Entity(d)
Attribute (b)	relationship type
cardinality constraint	Identifier(a)

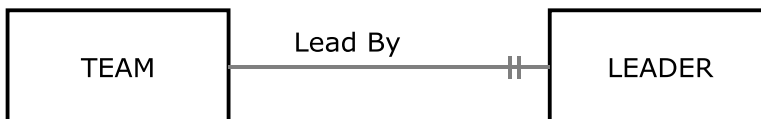
- a. _____ uniquely identifies entity instances
- b. _____ property of an entity.
- c. _____ depends on the existence of another entity type.
- d. _____ can be a person, place, object , and event.

2. List the four types of cardinality and draw an example for each ?

a. Optional one:



b. Mandatory one:



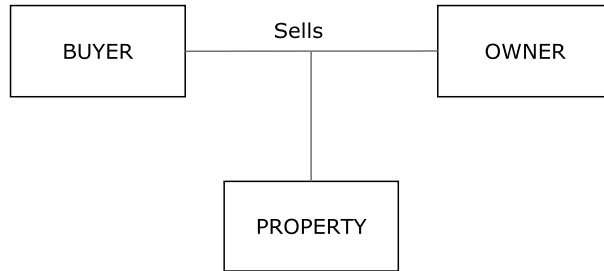
c. Optional many:



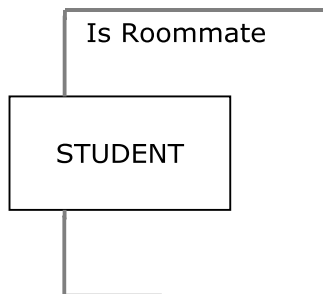
d. Mandatory many:



3. What is the degree of the following relationships :



a) 1. Ternary (three entity types):



b) 2- Unary (one entity type):



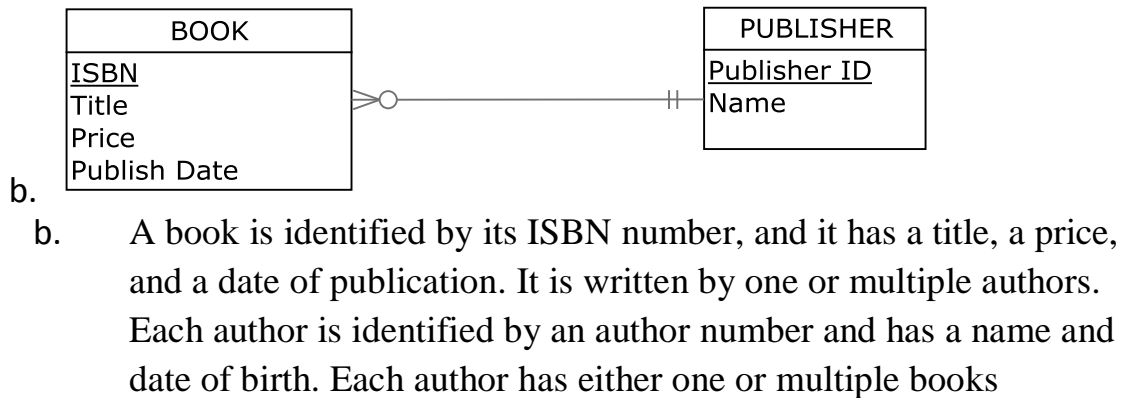
c) 3- Binary (two entity types):

4. For each of the descriptions below, perform the following tasks :

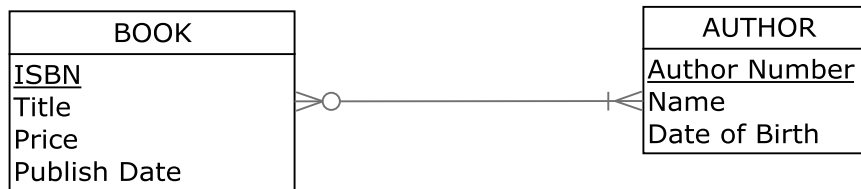
- i. Identify the degree and cardinalities of the relationship.

- ii. Express the relationships in each description graphically with an E-R diagram
- a. A book is identified by its ISBN number, and it has a title, a price, and a date of publication. It is published by a publisher, each of which has its own ID number and a name. Each book has exactly one publisher, but one publisher typically publishes multiple books over time.

This relationship is a degree of 2 (binary). This relationship is One-to-Many from Publisher to Book.



This relationship is a degree of 2 (binary). This relationship is Many-to-Many from Author to Book.



- c. A piano manufacturer wants to keep track of all the pianos it makes individually. Each piano has an identifying serial number and a manufacturing completion date. Each instrument represents exactly one piano model, all of which have an identification number and a name. In addition, the company wants to maintain information

about the designer of the model. Over time, the company often manufactures thousands of pianos of a certain model.

These relationships have a degree of 2 (binary). These relationships are One-to-Many.

